IN THE CLAIMS:

1-15. Canceled

16. (Currently Amended) A sub-micron MOS transistor comprising:

a substrate; and

an active region, including a gate region having a length of less than one micron; a source region including a LDD source region; and a drain region including a LDD drain region; wherein the ion concentration in said source region and in said drain region is between about $1 \cdot 10^{20}$ cm^{-3} to $1 \cdot 10^{21}$ cm^{-3}, and wherein the ion concentration in said LDD source region and in said LDD drain region is between about $\underline{1 \cdot 10^{19}}$ ~~$5 \cdot 10^{18}$~~ cm^{-3} to $5 \cdot 10^{19}$ cm^{-3}.

17. (Original) The MOS transistor of claim 16 which further includes an insulating oxide layer thereover and a source electrode, a gate electrode and a drain electrode.

18. (New) A sub-micron MOS transistor comprising:

a substrate; and

an active region, including a gate region having a length of about 100 nanometers; a source region including a LDD source region; and a drain region including a LDD drain region; wherein the ion concentration in said source region and in said drain region is between about $1 \cdot 10^{20}$ cm^{-3} to $1 \cdot 10^{21}$ cm^{-3}, and wherein the ion concentration in said LDD source region and in said LDD drain region is between about $5 \cdot 10^{18}$ cm^{-3} to $5 \cdot 10^{19}$ cm^{-3}.

19. (New) The MOS transistor of claim 18 further comprising:

a gate oxide layer overlying the active region;

a source electrode;

a gate electrode; and

a drain electrode.

20. (New) A sub-micron MOS transistor comprising:

a substrate;

an active region, including a gate region having a length of less than one micron; a source region including a LDD source region; and a drain region including a LDD drain region; wherein the ion concentration in said source region and in said drain region is between about $1 \cdot 10^{20}$ cm^{-3} to $1 \cdot 10^{21}$ cm^{-3}, and wherein the ion concentration in said LDD source region and in said LDD drain region is between about $5 \cdot 10^{18}$ cm^{-3} to $5 \cdot 10^{19}$ cm^{-3}; and

a gate oxide layer overlying the gate region having a length about twice as long as the gate region length.

21. (New) The MOS transistor of claim 20 further comprising:

a source electrode;

a drain electrode; and

a gate electrode having a length about half the length of the gate oxide layer.